

### REMARKS

Claims 29 - 51 are now active in the application.

Applicants have considered the following references in preparing the portion of the appended Prior-Art Statement pertaining to the patentability of Claims 24 through 45.

U. S. patent No. 3,614,673 (Kang) is cited for its showing of the coefficients of a time-domain filter being established based on computations of pulse response made in the frequency domain, using DFT and IDFT.

U. S. patent No. 4,027,257 (Perreault) is cited for its showing of an adaptive frequency-domain equalization filter.

U. S. patent No. 4,027,258 (Perreault) is cited for its showing of updating the weighting coefficients of an adaptive time-domain equalization filter, based on computations made in the frequency domain using DFT and IDFT.

U. S. patent No. 4,100,604 (Perreault) is cited for its showing of an adaptive frequency-domain equalization filter that uses a sliding window to select time-domain sample sets for frequency-domain equalization.

U. S. patent No. 6,031,882 (Enge *et al*) is cited for its showing of the transmission channel being characterized by the correlation of a received reference signal with that reference signal as known a priori by the receiver.

U. S. patent No. 6,512,789 (Mirfakhraei), drawn from a different field of art, shows the transmission channel for a multi-tone signal being characterized by the correlation of a received reference signal with that reference signal as known a priori by the receiver.

U. S. patent No. 5,065,242 (Dietrich *et al.*), drawn from a different field of art, is of interest for its use of discrete Fourier transforms to adapt filter coefficients in ghost suppressors for video signals, a concern in the reception of analog TV signals.

U. S. patent No. 5,251,033 (Anderson *et al.*), drawn from a different field of art, is of interest for its use of discrete Fourier transforms to adapt filter coefficients in ghost suppressors for video signals, a concern in the reception of analog TV signals.

U. S. patent No. 5,276,516 (Bramley), drawn from a different field of art, is of interest for its use of discrete Fourier transforms to implement frequency-domain filtering in ghost suppressors for video signals, a concern in the reception of analog TV signals.

Independent Claim 24 is amended to recite "apparatus for generating, in response to the discrete Fourier transforms of successive portions of said digital baseband signal that provide a sampling window moving through time **generally without substantial interruption**, an adaptive set of weighting coefficients for use by said bank of multipliers", an element neither shown nor suggested in enabling way by the art of record.

Independent Claim 27 is amended to recite "apparatus for generating, in response to the discrete Fourier transforms of successive portions of said amplitude-modulated intermediate-frequency carrier that provide a sampling window moving through time **generally without substantial interruption**, said adaptive set of weighting coefficients for use by said bank of multipliers", an element neither shown nor suggested in enabling way by the art of record.

Independent Claim 29 recites "apparatus for computing respective discrete Fourier transforms responsive to successive portions of said amplitude-modulated intermediate-frequency carrier that is amplitude-modulated in accordance with said selected one of said digital signals and any multipath distortion thereof, **said successive portions of said amplitude-modulated intermediate-frequency carrier providing a sampling window moving through time generally without substantial interruption**; and apparatus for computing the weighting coefficients of said adaptive filter so as to suppress first adaptive filter response arising from the amplitude of said amplitude-modulated intermediate-frequency carrier being modulated in accordance with multipath distortion of said selected one of said digital signals, with **the computations of said weighting coefficients being based on said discrete Fourier transforms of said successive portions of said amplitude-modulated intermediate-frequency carrier providing said sampling window moving through time.**"

These apparatuses are absent from the receivers in the prior art references referred to above. These prior-art receivers compute the weighting coefficients of said adaptive filter responsive to a prescribed training signal time-division-multiplexed with payload signal. Such receivers rely on successive portions of said amplitude-modulated intermediate-frequency carrier providing a sampling window for the training signal, which window moves through time with substantial interruptions for the transmission of payload signal. The computations of the weighting coefficients of the adaptive filter in such receivers are based on the correlation of the training signal portion of the received signal with ideal training signal known a priori at the receiver. The computations of the weighting coefficients are not based on each of the discrete Fourier transforms of successive portions of said amplitude-modulated intermediate-frequency carrier providing a sampling window moving through time.

Independent Claims 24, 27 and 29 also distinguish over applicant Limberg's U. S. published patent application 20010033341 of 25 October 2001. In published patent application 20010033341 the apparatus for DFTs selects portions of the amplitude-modulated intermediate-frequency carrier that contain repetitive PN sequences, which portions are separated from each other by fields of data.

Claim 29 is of broader scope than original claim 1, so there is more definite support for its priority in provisional patent application serial No. 60/193,301 filed March 30, 2000. New claim 30 specifies that "said sampling window moving continually in time is a sliding window that generally advances a given number of samples at a time" — e.g. one sample at a time, as described in that priority document. New claim 31 specifies that "said sampling window moving continually in time generally moves block-by-block over contiguous successive portions of said amplitude-modulated intermediate-frequency carrier", an embodiment preferred at the time patent application serial No. 09/823,500 was filed. Support is found in the paragraph bridging pages 22 and 23 of the specification of patent application serial No. 09/823,500.

Claims 14, 15, 16, 17, 18, 19 and 20 are replaced by Claims 46-51. Applicants have considered the following references in preparing the portion of the appended Prior-Art Statement pertaining to the patentability of Claims 46-51.

U. S. patent No. 5,528,311 (Lee *et al*) is cited for its FIGURE 2 showing of the conventional complex equalizer composed of four individual digital filters. This reference is further cited for its FIGURE 1 showing of an alternative complex equalizer composed of three individual digital filters.

U. S. patent No. 5,799,037 (Strolle *et al*) is cited for its Figure 7 showing of a complex equalizer with FIR and IIR components, the IIR component using decision feedback.

U. S. patent No. 6,337,878 (Endres *et al*) is cited for its Figure 2 and Figure 3 showings of complex equalizers with FIR and IIR components, the IIR components using decision feedback.

U. S. patent No. 6,426,972 (Endres *et al*) is cited for its Figure 7 showing of a complex equalizer with passband FIR and baseband IIR components, the IIR component using decision feedback.

U. S. patent No. 5,528,311 (Lee *et al*) is evidence that it was nonobvious to persons skilled in the art that demodulation at intermediate phases, rather than in-phase and quadrature-phase, could reduce the complex equalizer to two individual digital filters. The complex demodulation in the other references is also done in-phase and quadrature-phase, rather than at intermediate phases.

The (941)-625-7024 phone number is a temporary number for the undersigned applicant while his home, damaged in Hurricane Charley, is being reconstructed. Sometime in the spring of 2005 the phone number for the undersigned applicant will again be (941)-624-4302.

Respectfully submitted,



Allen LeRoy Limberg

Reg. No. 27,211

(941)-625-7024

November 23, 2004

Attachments: Transmittal Form

Power of Attorney

Supplemental Declaration of Inventors

Patent Application Fee Determination Record

Information Disclosure Statement by Applicant form

Enclosures: Patents listed on above form